

WHAT IS CLAIMED IS:

- 1 1. A communication circuit, comprising:
2 a first transceiver circuit;
3 a second transceiver circuit; and
4 an integrated transformer having a single core, an input
5 coil, a first output coil, and a second output coil,
6 wherein the input coil is configured to be coupled to a
7 signal source, the first output coil is coupled to the first transceiver
8 circuit, and the second output coil is coupled to the second
9 transceiver circuit.
- 1 2. The communication circuit of claim 1, wherein the first
2 transceiver circuit includes an ADSL codec.
- 1 3. The communication circuit of claim 2, wherein the
2 second transceiver circuit includes a LAN codec.
- 1 4. The communication circuit of claim 3, wherein the
2 second transceiver circuit includes a home LAN codec.
- 1 5. The communication circuit of claim 1, wherein the
2 single core is configured to operate in a plurality of frequency
3 ranges.
- 1 6. The communication circuit of claim 5, wherein the first
2 frequency range includes frequencies between 20 kHz and 1.1 MHz
3 and the second frequency range includes frequencies between 4.5
4 MHz and 10 MHz.

1 7. The communication circuit of claim 1, further
2 comprising a bandpass filter coupled between the second output coil
3 and the second transceiver circuit.

1 8. The communication circuit of claim 7, wherein the
2 bandpass filter is configured to pass only frequencies between 4.5
3 MHz and 10 MHz.

1 9. The communication circuit of claim 7, further
2 comprising a substrate having the transformer and the bandpass
3 filter disposed thereon.

1 10. A transformer for use in an integrated ADSL/LAN
2 system, comprising:
3 a core;
4 a first circuit coupled to the core and coupleable to a
5 signal source configured to receive an input signal from the signal
6 source, wherein the input signal includes at least one of an ADSL
7 signal and a LAN signal;
8 a second circuit coupled to the core configured to
9 receive the ADSL signal; and
10 a third circuit coupled to the core configured to receive
11 the LAN signal.

1 11. The transformer of claim 10, wherein the core is
2 configured to operate in a plurality of frequency ranges, wherein a
3 first frequency range includes an ADSL frequency and a second
4 frequency range includes a LAN frequency.

1 12. The transformer of claim 11, wherein the first
2 frequency range includes frequencies between 20 kHz and 1.1 MHz
3 and the second frequency range includes frequencies between 4.5
4 MHz and 10 MHz.

1 13. The transformer of claim 10, wherein the second circuit
2 is configured to provide the ADSL signal to an ADSL codec.

1 14. The transformer of claim 13, wherein the third circuit is
2 configured to provide the LAN signal to a LAN codec.

1 15. The transformer of claim 14, further comprising a
2 bandpass filter coupled between the third circuit and the LAN codec
3 configured to pass only frequencies between 4.5 MHz and 10 MHz

1 16. The transformer of claim 10, wherein the first circuit,
2 second circuit, and third circuit each include a coil of wire
3 surrounding the core.

- 1 17. A transformer circuit, comprising:
2 means for providing a path for a magnetic field;
3 means for receiving an input signal from a signal
4 source, wherein the input signal includes at least one of an ADSL
5 signal and a LAN signal;
6 means for receiving the ADSL signal via the magnetic
7 field path; and
8 means for receiving the LAN signal via the magnetic
9 field path.
- 1 18. The transformer of claim 17, wherein the means for
2 providing a path includes a transformer core.
- 1 19. The transformer of claim 17, wherein the means for
2 receiving an input signal includes an RJ11 jack.
- 1 20. The transformer of claim 17, wherein the means for
2 providing a path includes means for operating in a plurality of
3 frequency ranges, wherein a first frequency range includes an ADSL
4 frequency and a second frequency range includes a LAN frequency.
- 1 21. The transformer of claim 20, wherein the first
2 frequency range includes frequencies between 20 kHz and 1.1 MHz
3 and the second frequency range includes frequencies between 4.5
4 MHz and 10 MHz.
- 1 22. The transformer of claim 17, wherein the means for
2 receiving an input signal, the means for receiving the ADSL signal,
3 and the means for receiving a LAN signal each includes a coil of wire
4 having plurality of turns.

1 23. A communication circuit for home use, comprising:
2 an ADSL transceiver circuit;
3 a LAN transceiver circuit; and
4 a transformer configured to receive an ADSL signal
5 from a signal source and to provide the ADSL signal to the ADSL
6 codec and to receive a LAN signal from the signal source and to
7 provide the LAN signal to the LAN codec.

1 24. The communication circuit of claim 23, wherein the
2 transformer includes a first coil coupleable to the signal source, a
3 second coil coupled to the ADSL receiver circuit, and a third coil
4 coupled to the LAN receiver circuit.

1 25. The communication circuit of claim 23, wherein the
2 LAN receiver circuit is a Home LAN receiver circuit.

1 26. The communication circuit of claim 23, further
2 comprising a bandpass filter coupled between the transformer and
3 the LAN receiver circuit configured to pass only frequencies between
4 4.5 MHz and 10 MHz.

1 27. The communication circuit of claim 26, further
2 comprising a substrate having the transformer and the bandpass
3 filter disposed thereon.

1 28. The communication circuit of claim 23, wherein the
2 ADSL receiver circuit includes an ADSL codec.

1 29. The communication circuit of claim 23, wherein the
2 transformer includes a core configured to operate in a plurality of

- 3 frequency ranges, wherein a first frequency range includes an ADSL
- 4 frequency and a second frequency range includes a LAN frequency.